

Appn. No.: 10/779,900
Amendment Dated February 25, 2005
Reply to Office Action of September 27, 2004

GRY-118US

Amendments to the Claims: This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims:

1. (Currently Amended) Electromechanical valve actuator for internal combustion engines, equipped with a polarized electromagnet and with a mobile magnetic plate switching between a first position close to the electromagnet and a second position remote from the electromagnet, the switching times between these positions being determined depending on the operating state of the engine, comprising means for supplying the electromagnet with a progressively variable attracting current in the course of the approach of the plate to the electromagnet.
2. (Previously Presented) Actuator in accordance with claim 1, wherein the means for supplying the electromagnet with a variable attracting current includes means for reducing the attracting current as the plate is approaching.
3. (Currently Amended) Actuator in accordance with claim 1 or 2, wherein the means for supplying the electromagnet with a variable attracting current including-includes means for inverting the direction of the current supplying the electromagnet when the plate switches to the second position.
4. (Currently Amended) Actuator in accordance with claim 3, wherein the means for supplying the electromagnet with a variable attracting current including-includes means for controlling a current generating a magnetic field of an intensity lower than or equal to the intensity of the magnetic field generated by a magnet of the electromagnet when the current is inverted.
5. (Previously Presented) Actuator in accordance with claim 1 or 2, wherein the plate moves into the vicinity of a second electromagnet in its second position and the actuator further comprises means for simultaneously controlling the current supplies for the first electromagnet and the second electromagnet.
6. (Currently Amended) Actuator in accordance with claim 1 or 2, wherein the electromagnet is equipped with an E-shaped support having these-three branches, and includes

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a magnet located at the end of one of the branches of the support opposite in relation to the plate.

7. (Previously Presented) Actuator in accordance with claim 1 or 2, wherein the variations in the current are related to one of an amplitude and a duration of supply of the current.

8. (Previously Presented) Actuator in accordance with claim 1 or 2, further comprising means for adjusting the variable attracting current responsive to the speed of the engine to be a parameter of the operating state of the engine.

9. (Previously Presented) Internal combustion engine equipped with an actuator comprising a polarized electromagnet and a magnetic plate switching between a first position close to the electromagnet and a second position, characterized in that the actuator is according to claim 1 or 2.

10. (New) Actuator in accordance with claim 1 comprising means to modify the action of the electromagnet on the plate as the plate is approaching the electromagnet and the action of the magnet is developing.